ABSTRACT

THE EFFECT OF CURCUMIN ON GSH AND GSSG LEVELS IN CORNEA OF HYPERGLYCEMIA RATS MODEL

EXPERIMENTAL RESEARCH ON WISTAR RATS
(Muhammad Rony, Ismi Zuhria, Sony Wibisono)

Objective: To investigate the effect of *curcumin* on GSH and GSSG level in hyperglycemia induced corneal tissue.

Materials and Method: Corneal tissue obtained from hyperglycemia induced Wistar rats usingintraperitoneal injection of streptozotocin (STZ) (45 mg/kgBW) with and without exposure to *curcumin*(1 g/kgBW). The blood sugar checked within 72 hours after STZ administration. Control group is STZ and *curcumin*free. After 6 weeks, GSH and GSSG levels were examined in each groupsby enzyme-linked immunosorbent assay(ELISA).

Result: The mean levels of GSH in group I, II, III were 144.18 micromol/L, 14.02 micromol/L, and 144.98 micromol/L respectively. The mean levels of GSSG in group I, II, III were 11.82 micromol/L, 141.40 micromol/L, and 11.09 micromol/L respectively. After we conducted statistical analysis in each group (control, STZ, STZ+curcumin), there were difference in GSH/GSSG level The results of GSH analysis between group I (control) on group II (STZ) and group II (STZ) on group III (STZ+Curcumin) (p=0,00; p=0.00). However,there were no significant difference on GSH/GSSG between group I (control) with group III (STZ+Curcumin) (p=0,92; p=0,72).

Conclution:*Curcumin*increase GSH/GSSG ratio in hyperglycemia induced corneal damage indicate that *curcumin*stimulates the increase of corneal antioxidant level and cell reepithelialization. *Curcumin*is suggested as alternative therapy for corneal epithelialization damage caused by hyperglycemia condition

Keyword: *Curcumin*, gluthatione (GSH), oxidized gluthatione (GSSG), corneal damage, keratopathy diabetic, wistar rats.